SHVETSOV, V.

2689. SHVETSOV, V. -- Sbornik tipovykh normirovskhodu osnovnykh i vspomogatel'nykh materialov dlya pemonta obuvi. Riga, Lat'mestpromproyekt, 1955. 62s. 14X20sm.(M-vo mestnoyitoplivnoy prom-sti Latv. SSP) 500ekz. 3. ts.-V Vyp. Dannykhavt: V Shevetsov.-- (55-4603) 685.31.03/685.31.04) 658.54

SO: Knizhnaya Letopis', Vol. 7, 1955

SHVETSOV, V.; NESMELOV, V.; LEBEDEVA, N.

Recovery of dichloroethane vapors in a foam layer. Mias.ind.SSSR 32 no.6:54-56 '61. (MIRA 15:2)

1. Kazanskiy khimiko-tekhnologicheskiy institut im. Kirova.
(Ethane)

SHVETSOV, V., kand.tekhn.nauk

Fat extraction from bones. Mias.ind.SSSR 33 no.2:51-52 '62.
(MIRA 15:5)

(Meat industry--By-products)

S/198/62/008/003/001/008
D407/D301

AUTHORS: Kosmodamians'kyy, O.S., Mehlins'kyy, V.V., and Shvetsov, V.A., (Saratov)

TITLE: Straining an anisotropic plate having a curvilinear hole reinforced by a rigid ring

PERIODICAL: Prykladna mekhanika, v. 8, no, 3, 1962, 237 - 247

TEXT: The stressed state of an anisotropic plate with a curvilinear (elliptic) hole is determined by the small-parameter method, proposed by S.G. Lekhnits'kiy (Ref. 1: Anizotropnye plastinki (Anisotropic Plates), Gostekhizdat, 1957). The function which effects a conformal mapping of the interior of the unit circle onto the exterior of the contour of the anisotropic plate, has 6 terms, viz.:

$$z = \omega(\zeta) = a\left[\frac{1+c}{2}\zeta^{-1} + \frac{1-c}{2}\zeta + \varepsilon\sum_{k=2}^{5} a_k \zeta^k\right]; \qquad (1.2)$$

Card 1/3

Straining an anisotropic plate ...

(c = b/a; a, b are axes). This makes it possible to obtain formulas for the stressed state of a plate with many holes. At infinity, the plate is subjected to uniformly distributed stresses p, which are parallel to the x-axis, and to stresses q, parallel to the y-axis. It is assumed that the deformations are small, that body forces are absent and that Hooke's generalized law applies. It is required to determine the stresses state of the plate in the neighborhood of the contour. The plate is assumed as orthotropic. The stresses σ_x, σ_y, τ_{xy} are expressed by the functions $\Phi_1(z_1)$ and $\Phi_2(z_2)$, where z is a complex variable. The functions Φ are expanded in series in the small parameter ε, and terms, up to second-order, are retained. The boundary conditions are set up. After calculations, one obtains working formulas for the stresses. In the case of an isotropic plate, the problem under consideration has an exact solution. As an example, a plate with a triangular hole is considered. The mapping function is obtained by means of expansions in terms of the Christoffel-Schwartz integral. The authors calculated the stresses which arise in the neighborhood of such holes. The results of the calculation are given in the form of graphs and tables. These lead to the

Card 2/3

Straining an anisotropic plate ...

following conclusions: 1) The presence of a rigid ring reduces sharply the stress concentration near the hole, (as compared to the case where the ring is absent). 2) The stress concentration in an anisotropic plate with a hole, reinforced by a ring, is lower than in an isotropic plate. If the hole is not reinforced, then the converse is true. 3) In the case of a veneer plate with a reinforced hole, the stress concentration is greater if $E_y = E_{max}$ with the strain in the direction of the x-axis, and smaller if $E_y = E_{max}$ with the strain along the y-axis. If the hole is not reinforced by a ring, then the converse is true. There are 5 figures, 4 tables and 6 Soviet-bloc references.

ASSOCIATION: Saratovs'kyy derzhavnyy universytet (Saratov State University)

SUBMITTED: November 17, 1961

Card 3/3

SHVETSOV, V.A.

Investigating the heat and mass transfer of chip packing. Trudy KKHTI no.26:167-175 '59. (MIRA 15:5)
(Packed towers) (Mass transfer) (Heat—Transmission)

S/138/59/000/012/002/006

AUTHORS: Shvetsov, V. A., Pisarenko, A. P., Novikov, A. S.

TITLE: An Investigation Into the Properties of Filled Nitrile Rubbers. Communication 1. The Properties of Filled Silicate-Nitrile Rubbers 15

PERIODICAL: Kauchuk i Rezina, 1959, No. 12, pp. 4-8

TEXT: At present two types of powdered silica gel are manufactured in the Soviet Union, viz. soft and hard silica gel, imparting different properties to the rubber. It is further stated that powdered silica gel is irreplaceable as an accelerator in the production of colored rubber based on synthetic rubbers with high mechanical indices and has many advantages over the carbon blacks. One of the most popular types of silica gel is aerosil, which is just as active as any carbon black. It is pointed out that the Soviet rubber industry lacks sufficient quantities of the silica gel accelerators and the available types have some serious disadvantages due to the backward production methods used. Their quality is not homogeneous. The necessity of producing filled rubbers based on synthetic raw material by some other means is pointed out. A short survey is given

Card 1/4

S/138/59/000/012/002/006

An Investigation Into the Properties of Filled Nitrile Rubbers.
Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

of the methods recently used for this purpose. The All-Union Scientific Research Institute of Film Materials and Artificial Leather (VNIIPIK) developed in 1951-1953 a method for the production of filled butadiene-styrene rubbers, using silicates of various metals obtained in the latex as fillers. The CKH-18 (SKN-18), CKH-26 (SKN-26) and CKH-40 (SKN-40) type butadiene-nitrile rubbers are used in the rubber industry for the production of oil-resistant rubber. The authors were particularly interested in determining the possibilities of producing oil-resistant and heat-resistant butadiene-nitrile rubbers, filled with silicate fillers during the latex stage. These rubbers were named silicate-nitrile rubbers. It was shown that the strength of the rubber increases considerably when the filler is introduced in the latex stage, and much less so, when introduced on the rollers. This is true even for small quantities of the filler, such as 20 weight parts of filler to 100 weight parts of the rubber. For greater amounts of filler, e.g. 60 weight parts of filler to 100 weight parts of rubber the relative elongation is 575-674%. The high structuralizing properties of the silicate fillers obtained in the latex can be seen from the hardness determination according to Defoe. The mechanical processing of the

Card 2/4

An Investigation Into the Properties of Filled Nitrile Rubbers.
Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

silicate-nitrile rubbers presents little difficulty in spite of the high values of hardness according to Defoe due to the weakening of the secondary rubber-filler bonds and due to an increase in the fluidity of the mixture caused by an increase in the mixing temperature. The rupture-, wear-resistance and the elasticity of the rubbers filled in the latex is higher than those filled on the rollers. The former also have a better roadability. The thermal-resistance is the same. Tables 2 and 3 give the comparative figures of the various properties. At elevated temperatures the rubbers filled in the latex retain their strength better than those filled on the rollers, they have better resistance to thermal aging. The aging was carried out at 100, 110, 120 and 130°C lasting from 12 hours to 10 days. The high resistance to aging of the vulcanizates is explained by the active filler blocking the double bonds of the hydrocarbon rubber, which decreases the reactivity of the rubbers, inhibiting the development of the oxidizing processes (Ref. 5). Long-lasting storage does not change the properties of the silicate-nitrile vulcanizates, which is of practical significance in the mass production of this rubber in the form of chunks. SKN-26 rubber with 60 weight parts of calcium silicate and filled in the latex stage will

An Investigation Into the Properties of Filled Nitrile Rubbers. Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

dissolve to only 16.5% in a 75% chlorobenzene and 25% n-dichlorobenzene system, whereas without the filler it would dissolve completely. The vulcanizate with a silicate-nitrile base has a high resistance to swelling, corresponding to the swelling observed in the SKN-26-based rubbers. Rubbers produced from silicate-nitrile raw material have better properties than those produced from nitrile rubbers, where the filler is introduced on the rollers, and are very valuable for the production of various oil-resistant commercial articles.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific-Research Institute of the Rubber Industry)

SHVETSOV, V. A., Cand Tech Sci -- (diss) "Research into the performance of scrubbers with jet nozzles." Kazan', 1960. 14 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Kazan' Chemical Technology Inst im S. M. Kirov); 150 copies; price not given; (KL, 26-60, 139)

85[illegible]

S/[illegible]/[illegible]/[illegible]/[illegible]/[illegible]
B004/B060

11 2211

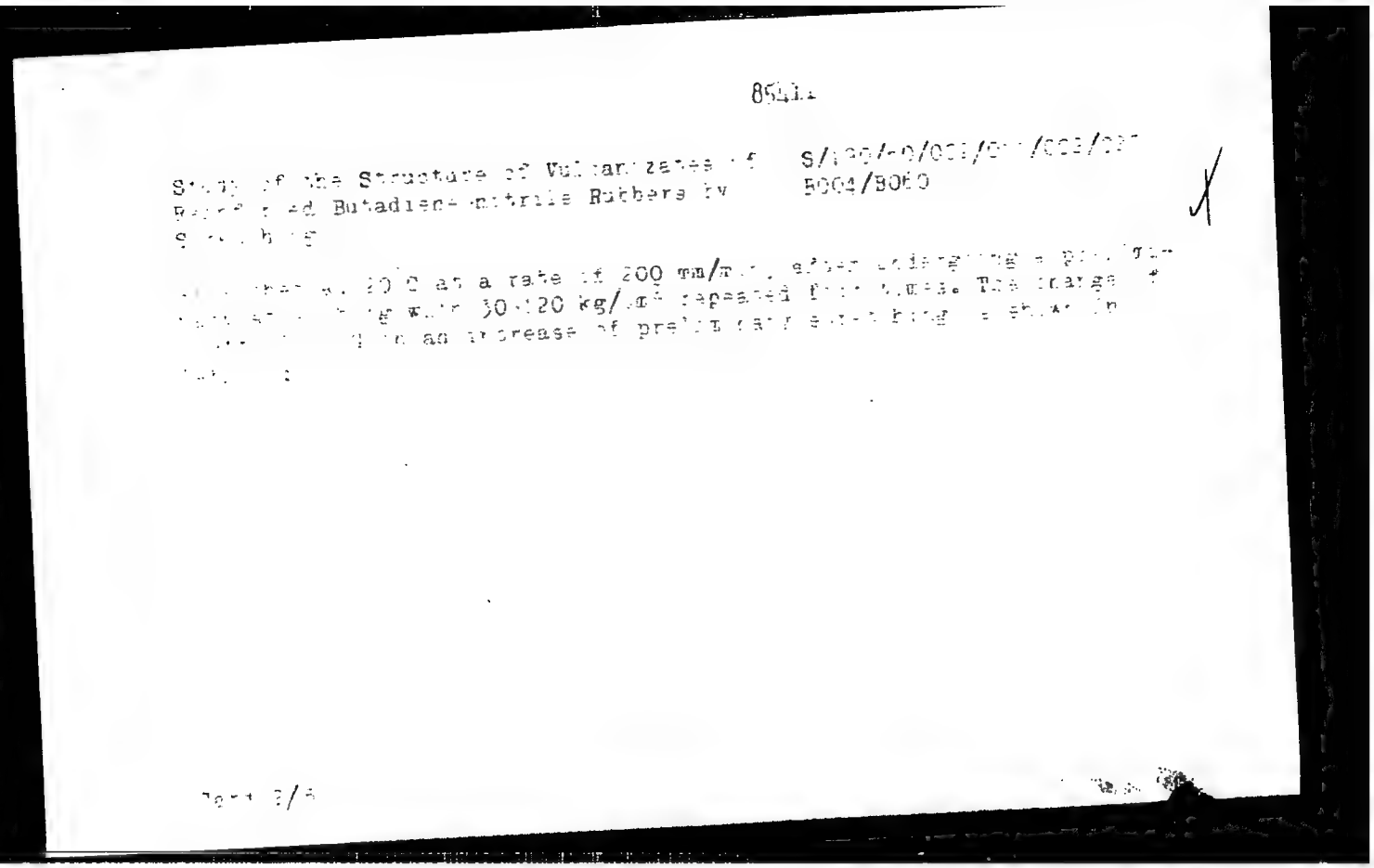
AUTHORS: Sm[illegible], V. A., N[illegible]k[illegible], A. S., P[illegible], A. P.

TITLE: Study of the Structure of V[illegible] [illegible] of R[illegible]d Butadiene-nitrile Rubbers by Str[illegible]ing

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, [illegible] No. [illegible], pp. 1608 - 1612

TEXT: The authors wanted to find out whether the semi-emp[illegible] equation for elongation as a function of stress, as developed by A. F. Blanchard and D. Parkinson (Ref. 4), was also applicable to butadiene-nitrile rubbers filled with channel black or aluminum hydroxide. The Blanchard - Parkinson equation is written down: [illegible]F = [illegible]. [illegible] H-[illegible], F denotes the stress per unit area [illegible] G a module which is [illegible] to all [illegible] the number of elongations, [illegible] bonds, including the sulfur bonds of the vulcanizate, [illegible] characterizing the interaction between rubber and filler. The authors conducted tests with CKH-26 (SKN-26) rubber filled with channel black, calcium silicate, or aluminum hydroxide. The [illegible] was

Card 1/[illegible]



8544

Study of the Structure of Vulcanizates of Butadiene-nitrile Rubbers by Swelling

S/[illegible]/003/[illegible]/003/[illegible]
5004/B060

[illegible] at 20°C at a rate of 200 mm/min, after undergoing a [illegible] charge with 30-120 kg/cm² repeated [illegible] times. The charge [illegible] an increase of preliminary stretching [illegible]

Card 3/4

85411

S/190/60/002/0[illegible]/002/027
B004/3060

Study of the Structure of Vulcanizates of Reinforced Butadiene-nitrile Rubbers by Stretching

Value of G at a preliminary stretching of kg/cm²: (1)	Composition of rubbers in parts by volume: Natural rubber with 28 channel black (2)	SKN-26 with 28 [illegible] black (3)	SKN-26 with 17 [illegible] (4)	SKN-26 with 28 aluminum [illegible] hydroxide (5)	SKN-26 with 17 aluminum [illegible] hydroxide (6)
without prior stretching	9.2	8.8	6.[illegible]	8.6	6.0
G 30	9.[illegible]	9.3	6.0	8.0	5.5
G 80	[illegible].5	6.[illegible]	4.5	4.9	5.0
G 130	6.2	4.15	2.8[illegible]	2.1	-
Bonds left over after maximum stretching	[illegible]7.4	4[illegible].0	[illegible].7	24.5	24.5

Moreover, values are given for the coefficients G, G^*, and Gr. (G^* is the coefficient of primary bonds, Gr the coefficient of secondary bonds).

Card 3/5

B5411

Study of the Structure of Vulcanizates of Reinforced Butadiene-nitrile Rubbers by Straining

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3301/B060

Calculations were made on the basis of equation $\sigma = \sigma' - G\varepsilon f(\varepsilon)$, $\gamma = \alpha S/G^{2/3}$ is written for γ, S being the stress at the initial strain ε = 0.

Table 1

Composition of rubbers in parts by volume	G	$\frac{1}{E^*}$	$\frac{1}{E}$
Natural rubber with 28 ch. black	9.2	5.2	4.0
SKN-26 with 28 ch. black	8.8	3.8	5.0
SKN-26 with 17 ch. black	6.3	2.7	3.6
SKN-26 with 28 $Al(OH)_3$	8.6	1.2	7.4
SKN-26 with 17 $Al(OH)_3$	6.0	0.9	5.1

Basing on these data, the following conclusions are reached: 1) The Mooney-Rivlin equation is also applicable to butadiene-nitrile rubber

Card 4/5

85411

Study of the Structure of Vulcanizates of Butadiene-nitrile Rubbers by Swelling

S/190/60/002/0[illegible]/003/03[illegible]
B004/B060

filled with channel black or aluminum hydroxide. 2) Vulcanizates from butadiene nitrile rubber filled with aluminum hydroxide are softened up to a higher degree than the same rubbers filled with channel black. 3) Natural rubber has more primary bonds, while SKN-26 filled with channel black, but especially with aluminum hydroxide, has more secondary bonds. The structure of the vulcanizates therefore differs. G. S. Petrikeyev is mentioned. There are 2 figures, 2 tables, and 7 references: 2 Soviet, 2 US, 2 British, and 1 German.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

SUBMITTED: February 2, 1960

Card 3/3

83837

S/138/60/000/004/003/008
A051/A029

15.9200 also 2209

11.2220

AUTHORS: Shvetsov, V.A., Novikov, A.S., Pisarenko, A.P.

TITLE: The Properties of Filled Aluminate-Nitrile Rubbers

PERIODICAL: Kauchuk i Rezina, 1960, No. 4, pp. 12 - 17

TEXT: The results of the development of a method for producing nitrile rubbers filled with aluminum hydroxide in the latex (called aluminate--nitrile rubber) are given. With this method it is possible to produce vulcanizates with high physico-mechanical properties. No complex apparatus is necessary and the aluminate-nitrile rubbers have a higher mechanical resistance than the silicate-nitrile rubbers. The СКН-18 (SKN-18) and the СКН-26 (SKN-26) latexes were used in the production of the aluminate-nitrile rubber. Vulcanizates produced from aluminate-nitrile rubber have a high elasticity. The specific elongation in SKN-26 reaches 1,000 - 1,100%. Rubbers with aluminum hydroxide obtained from the latex, as well as that with introduction on the rollers have an elevated residual elongation and a high resistance to wear and tear. The resistance to repeated bending and crack growth is higher in vulcanizates with aluminum hydroxide introduced into the latex

Card 1/4

83837

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A051/A029

The Properties of Filled Aluminate-Nitrile Rubbers

compared to introduction on the rollers only. In order to study the resistance of the rubber to thermal effect, samples of various vulcanizates were subjected to aging in a thermostat at temperatures 100, 120 and 130°C, beginning with 12 hours and lasting up to 10 days. The best results showed rubbers can be stored for a long time without changing their properties. The authors attempted to discover why the filler obtained in the latex has a higher strengthening power as compared to the filler produced separately and introduced into the rubber on the rollers. They also tried to determine the comparative properties of mineral fillers of the potassium silicate and aluminum hydroxide types, e.g., gaseous channel carbon black. The structuralizing role played by the fillers was investigated experimentally and found to correspond favorably with previous data (Refs. 2 - 5). The experiments also showed that the high strengthening ability of calcium silicate and aluminum hydroxide obtained in the latex can be explained by the high dispersion of the particles of the filler and good distribution of the filler in the rubber mass, as well as the absence of aggregation of the particles, formation of structures by the filler and the ability of the filler to form a bond

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A051/A029

The Properties of Filled Aluminate-Nitrile Rubbers

of the adsorption type with the rubber. The experimental data also proved that the presence of the SO_4 group in the molecule does not affect the strengthening ability of aluminum hydroxide produced in the latex, contrary to other opinions. The SO_4 group can have an effect on the crystallization process which takes place when the filler is produced outside of the latex, and, therefore, on the structure and dispersion of the filler and, thus, indirectly on the strengthening ability of the latter. The method developed for producing aluminate-nitrile rubbers has great significance for the Soviet Rubber Industry, since it lowers the energy consumption, the time needed to produce the mixtures and improves the productivity of the mixing apparatus. The rubber produced in the form of chunks enables one to automate the weighing and loading processes during mixing. It also enlarges the assortment of the different rubbers used in the manufacturing of oil-resistant and thermo-resistant rubber products. Finally, this method replaces the use of scarce carbon black, since the aluminate-nitrile rubber yields vulcanizates similar in their properties to that of the vulcanizates on a gaseous carbon black base. There are 6 tables, 1 figure and 10 Soviet references.

Card 3/4

83837

S/138/60/000/004/003/008
A051/A029

The Properties of Filled Aluminate-Nitrile Rubbers

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti i Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi (Scientific Research Institute of the Rubber Industry and All-Union Scientific Research Institute of Film Materials and Synthetic Leather)

Card 4/4

69467
S/069/60/022/02/015/024
D034/D002

15.9200

AUTHORS: Shvetsov, V.A., Pisarenko, A.P., Shtarkh, B.V., Novikov, A.S.

TITLE: An Electron Microscopic Study of the Structures of Reinforced Rubbers

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 2, pp 233-236 (USSR)

ABSTRACT: The authors report on the results of an electron microscopic study of the structuration of silicate and aluminate fillers in rubbers of the type SKN-18 and SKN-26. The silicate fillers were obtained from sodium silicate and calcium chloride silicate, the aluminate fillers - from the carbonates of sodium and aluminum sulfate. The study, which was carried out with an electron microscope of the type EM-3 (magnification - 7500), showed in the rubber solutions

Card 1/4

69467
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D034/D002

An Electron Microscopic Study of the Structures of Reinforced Rubbers

the presence of sol and gel rubber fractions and of loose coagulation structures of the fillers (see electron microscopic photographs on insert). The dispersity of the elementary particles of aluminate fillers is more pronounced than the dispersity of silicate fillers; the visibility of the particles is near the limit of the resolving capacity of the electron microscope. On the whole it could be shown that high dispersity, low aggregation tendencies and the ability to form loose network and chain coagulation structures on the part of the fillers are highly important factors in the reinforcement of rubbers. The authors mention B. Dogadkin and collaborators [Ref. 2], who showed that the main reinforcing action of hydrocarbon blacks consists in the formation of chain and network structures in the

Card 2/4

69467
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D034/D002

An Electron Microscopic Study of the Structures of Reinforced Rubbers

rubber mixtures. A.P. Pisarenko and collaborators [Ref 5] (in agreement with P.A. Rebinder and his school) showed that the participation of surface-active substances (additives) in the formation of mineral fillers determines basic characteristics of the fillers, as high dispersity and the ability to form chain and network structures. The authors' investigation was carried out on the lines of the results obtained by these scientists. There are 5 electron microscopic photographs on a centerfold and 9 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi, Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti;

Card 3/4

69467

S/069/60/022/02/015/024
D034/D002

An Electron Microscopic Study of the Structures of Reinforced Rubbers

Moskva (Scientific Research Institute of Film Materials and Synthetic Leather, Scientific Research Institute of the Rubber Industry; Moscow)

SUBMITTED: February 7, 1959

Card 4/4

87768

S/069/60/022/006/005/008
B013/B066

11.2210
15.9200

2109, 1209, 1429

AUTHORS: Shvetsov, V. A., Pisarenko, A. P., and Novikov, A. S.

TITLE: Problem of Investigating the Bond Character in the System Rubber - Filler

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 6, pp. 743-747

TEXT: The authors applied the method devised by B. Dogadkin and co-workers (Refs. 1 and 2) to study the dispersion of calcium silicate an aluminum hydroxide in rubber mixtures and in vulcanized rubber. The present paper reports the results with respect to aluminum hydroxide. The partial or complete extraction of aluminum hydroxide from the rubber by boiling in weak NaOH solutions was shown to be possible. The shortest extraction time (2 hours) was found to correspond to the optimum filling of 60 parts by weight. In this case a maximum development of structure occurs with a markedly pronounced continuous phase of the filler, which facilitates the penetration of the solvent into the rubber. With poor filling, the chain structure of the filler is less pronounced, and extraction is more time-consuming. This rule also holds for plasticized

Card 1/3

87768

Problem of Investigating the Bond Character in the System Rubber - Filler

S/069/60/022/006/005/008
B013/B066

rubbers (binary system rubber - filler). The extraction in this case, however, proceeds more slowly than in rubbers that had not been rolled, which is due to a denser structure and a higher number of rubber - filler bonds. On incorporation of aluminum hydroxide during the rolling less compact rubbers were obtained than on incorporation of the filler into latex. The filler incorporated during rolling was found not to form chain structures. The authors further studied the effect of stearin as a dispersion medium on the properties of the resultant rubber. The extraction of aluminum hydroxide was found to be accelerated by the introduction of stearin. In vulcanized rubbers the aluminum hydroxide extraction takes place in the same way as in non-vulcanized systems. The comparatively easy extraction of aluminum hydroxide from rubber mixtures and vulcanized rubber indicates that prevalently physical bonds, presumably of the adsorption type, are formed between the individual filler and the nitrile rubber. Stable chemical bonds are either not formed at all or only to a low extent. After incorporation of aluminum hydroxide into the latex state and after subsequent extraction of this filler the rubbers disclose properties which differ from the original ones. The mixtures obtained on the basis of extracted CKH-26 (SKN-26) rubber gave much harder vulcanized

Card 2/3

87758

Problem of Investigating the Bond Character in the System Rubber - Filler

S/069/60/022/006/005/008
B013/B066

rubbers than mixtures of SKN-26 rubber obtained from latex. The tearing strength is in the former case 45 kg/cm^2 (relative elongation 480%), and in the latter case 31 kg/cm^2 (relative elongation 510%). The rubbers were dried at 120°C. The higher strength of the vulcanized rubbers obtained from rubber whose filler had been extracted suggests a possible structure formation under the action of aluminum hydroxide, that is to say, the formation of direct bonds between the polymer molecules during the heat treatment of the system rubber - filler. There are 5 figures and 9 references: 5 Soviet, 2 German, 1 US, and 1 British.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti, Moskva (Scientific Research Institute of the Rubber Industry, Moscow)

SUBMITTED: August 27, 1959

Card 3/3

KOSMODAMIANSKIY, A.S. [Kosmodamians'kyi, O.S.] (Saratov); MEGLINSKIY, V.V. [Meglins'kyi, V.V.] (Saratov); SHVETSOV, V.A. (Saratov)

Stretching of an anisotropic plate having a curvilinear hole reinforced with a rigid ring. Prykh.mekh. 8 no.3:337-247 '62. (MIRA 15:6)

1. Saratovskiy gosudarstvennyy universitet.
(Elastic plates and shells)

ZIGMUND, F.F.; SHVETSOV, V.A.

Recovery of solvents in industrial enterprises with the method of two-phase adsorption. Lakokras.mat.i ikh prim. no.2:65-66 '62. (MIRA 15:5)

(Painting, Industrial--Equipment and supplies)

ACCESSION NO: AP4017166 S/0136/64/000/002/0052/0053

AUTHORS: Shvetsov, V. A.; Frenkel', R. Sh.; Pisarenko, A. P.; Zalesskaya, A. D.

TITLE: The use of native clays as raw material for the rubber industry

SOURCE: Kauchuk i rezina, no. 2, 1964, 52-53

TOPIC TAGS: rubber, vulcanized rubber, filler, clay, brown clay, kaolin, physico-mechanical property, scorching, wear, tensile strength, stretch, modulus, deformation, SKS 30 synthetic rubber, SKN 26 synthetic rubber

ABSTRACT: The present study was undertaken to find out whether the abundant brown Khvaly*nsk clays of the Pochtar deposit in the vicinity of the Volga Chemical Industrial Combine could be substituted for kaolin as a filler for SKS-30 and SKN-26 rubber. The brown clay contains (in %) 54.6 SiO_2, 19.1 Al_2O_3, 8.7 Fe_2O_3, 3.4 CaO, and 3.9 MgO, while kaolin contains 46.5 SiO_2, 39.5 Al_2O_3, and no Fe_2O_3, CaO, or MgO.. The specific surface of the brown clay is 56.0 m^2/g as against 25.0 m^2/g for kaolin. The working of the standard rubber compounds containing either brown clay or kaolin was conducted on laboratory rolls, and the physical and mechanical properties of the obtained vulcanizates evaluated by standard techniques. It was found that in plasticity and resistance to scorching both clays were practically identical,

Card 1/2

ACCESSION NO: AP4017166

but the rate of vulcanization in the presence of brown clay was enhanced, requiring at 143C only 30 minutes as against 50 for kaolin, and the strength of the obtained vulcanizate was higher. However, it required nearly 70-80 parts by weight of the brown clay, as against 40 parts of kaolin, to bring about an optimal strength in the vulcanizate. It was also established that the vulcanizates containing the brown clay have a higher modulus index, a lesser degree of hysteresis, and a higher endurance under multiple deformation stress than kaolin-filled vulcanizates. Orig. art. has: 1 table and 2 charts.

ASSOCIATION: Volzhskiy filial nauchno-issledovatel'skogo instituta rezinovoy promy*shlennosti (Volga Branch of the Scientific Research Institute of the Rubber Industry)

SUBMITTED: 00 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 000 OTHER: 000

Card 2/2

KOSMODAMIANSKIY, A.S. [Kosmodamians'kyi, O.S.] (Saratov); MEGLINSKIY, V.V. [Mehlins'kyi, V.V.] (Saratov); SHVETSOV, V.A. (Saratov)

Stretching of an anisotropic plate with an arch-shaped hole. Prykl. mekh. 9 no.4:441-446 '63. (MIRA 16:8)

1. Saratovskiy gosudarstvennyy universitet.

KOSMODAMIANSKIY, A.S. [Kosmodamians'kyi, O.S.] (Saratov); MEGLINSKIY, V.V. [Mehlins'kyi, V.V.]; (Saratov); SHVETSOV, V.A. (Saratov)

Tension of an anisotropic plate with a trapiezoid hole reinforced with a rigid ring. Prykl. mekh. 9 no.6:683-685 '63. (MIRA 16:12)

1. Saratovskiy gosudarstvennyy universitet.

ACC NR: AP6036454 SOURCE CODE: UR/0198/66/002/011/0015/0024

AUTHOR: Shvetsov, V. A. (Saratov)

ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

TITLE: Elastic equilibrium of an anisotropic plate with a finite number of elliptic holes reinforced by elastic rings

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 15-24

TOPIC TAGS: anisotropic plate, orthotropic plate, hole weakened plate, elastic stress, anisotropic medium

ABSTRACT: An effective method of analyzing the elastic equilibrium and the state of stress in anisotropic plates weakened by elliptic holes has been developed by A. S. Kosmodamianskiy (Izv. AN Arm SSR, Seriya fiz. matem. nauk, v. 13, no. 6, 1960; Inzhenernyy zhurnal, v. 2, no. 3, 1962; and Prikladnaya mekhanika, v. 1, no. 10, 1965). In this article this method is applied in a case when the edges of N identical elliptic holes in an anisotropic infinite plate are reinforced by identical elliptic anisotropic rings. The centers of holes are equally spaced and their major axes are placed in line; the rings are fastened (glued or soldered) to the plate along their outer contours. The self-balanced stresses in the middle surface of the plate along each hole edge, as well as the state of stress in infinity are given. Determination of stress distributions in the plate and in the reinforcing rings is reduced to determining the functions of complex variables which describe

Card 1/2

ACC NR: AP6036454

the states of stress in these elements; the formulas for calculating the normal and tangential stresses in them are given. The obtained solution is applied to analysis of stress distribution in an orthotropic plate with two elliptic holes reinforced by rings made of a different orthotropic material. The plate is subjected in infinity to uniform tensions in the direction of the major hole axes and in the direction perpendicular to it; the hole edges are free of external loads. The results of a numerical calculation of stress distribution in a particular plate (with and without rings) performed on the "Ural-2" electronic computer are given in tables and are discussed in detail. Orig. art. has: 2 figures, 25 formulas, and 2 tables. [WA-74]

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 006

Card 2/2

ACC NR: AP6036454 SOURCE CODE: UR/0198/66/002/011/0015/0024

AUTHOR: Shvetsov, V. A. (Saratov)

ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

TITLE: Elastic equilibrium of an anisotropic plate with a finite number of elliptic holes reinforced by elastic rings

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 15-24

TOPIC TAGS: anisotropic plate, orthotropic plate, hole weakened plate, elastic stress, anisotropic medium

ABSTRACT: An effective method of analyzing the elastic equilibrium and the state of stress in anisotropic plates weakened by elliptic holes has been developed by A. S. Kosmodamianskiy (Izv. AN Arm SSR, Seriya fiz. matem. nauk, v. 13, no. 6, 1960; Inzhenernyy zhurnal, v. 2, no. 3, 1962; and Prikladnaya mekhanika, v. 1, no. 10, 1965). In this article this method is applied in a case when the edges of N identical elliptic holes in an anisotropic infinite plate are reinforced by identical elliptic anisotropic rings. The centers of holes are equally spaced and their major axes are placed in line; the rings are fastened (glued or soldered) to the plate along their outer contours. The self-balanced stresses in the middle surface of the plate along each hole edge, as well as the state of stress in infinity are given. Determination of stress distributions in the plate and in the reinforcing rings is reduced to determining the functions of complex variables which describe

Card 1/2

ACC NR: AP6036454

the states of stress in these elements; the formulas for calculating the normal and tangential stresses in them are given. The obtained solution is applied to analysis of stress distribution in an orthotropic plate with two elliptic holes reinforced by rings made of a different orthotropic material. The plate is subjected in infinity to uniform tensions in the direction of the major hole axes and in the direction perpendicular to it; the hole edges are free of external loads. The results of a numerical calculation of stress distribution in a particular plate (with and without rings) performed on the "Ural-2" electronic computer are given in tables and are discussed in detail. Orig. art. has: 2 figures, 25 formulas, and 2 tables. [WA-74]

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 006

Card 2/2

28 (5)

AUTHOR: Shvetsov, V. B. SOV/32-25-6-42/53

TITLE: Application of an Electron Potentiometer as Programming Regulator (Ispol'zovaniye elektronnogo potentsiometra v kachestve programmnogo regulyatora)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 752-753 (USSR)

ABSTRACT: The electron potentiometer EPD-02 is in the present case used as a programming regulator for the temperature regulation of electric furnaces without any modification of its construction. Instead of the paper diagram a disk (diameter 280-300 mm) of brass- or copper sheet is fastened on to which a paper is pasted which is formed according to a fixed program (Fig 1). The disk rotates while an electric contact slides on it which is fastened to the indicator; usually the recorder is fastened to the indicator. Two contacts are applied to three-position regulators, each contact being connected with an other indicator (Fig 2). It is possible to change the distance between the electric contacts. There are 2 figures.

Card 1/2

Application of an Electron Potentiometer as Programming Regulator

SOV/32-25-6-42/53

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut (Ural Scientific Research Institute of Chemistry)

Card 2/2

SOV/32-25-7-28/50

28(5)
AUTHORS: Shvetsov, V. B., Pavlushkin, N. M.

TITLE: News in Brief (Korotkiye soobshcheniya)

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, p 862 (USSR)

ABSTRACT: V. B. Shvetsov (Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut) (Ural Scientific Chemical Research Institute) suggest a device for using the recording galvanometer as a contact galvanometer. Its function as a recording galvanometer was not influenced by its use as a contact galvanometer. In principle, the device is a contact arrangement (Fig) by which the minimum and maximum temperature of a furnace can be fixed. N. M. Pavlushkin (Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva) (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev) describe the preparation of corundum cuts which are used in the investigation of baked corundum samples. The prismatic samples (three samples: 5 ×5 ×18 mm) are pasted on to steel disks (diameter: 25-30 mm) and fixed to a grinding roll with 100 rpm. The samples are cut on cast iron disks (of the type SChM 32-52) with electrocorundum powder. The following substances are used in cutting: electrocorundum Nr 320 for ten minutes, M-10 for ten minutes, M-5

Card 1/2

News in Brief

for 10 minutes, and alumina (annealed at 1450°, grain $> 2\mu$) for 20 minutes. After cutting the samples are polished. There is 1 figure.

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut (Ural Scientific Chemical Research Institute). Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

NIKOLAYEV, Boris Aleksandrovich; REBINDER, P.A., akademik, retsenzent; VOLAROVICH, M.P., prof., retsenzent; [illegible] G.S., prof., retsenzent; GRYUNER, V.S., prof., retsenzent; SHVETSOV, V.G., red.

[Measurement of the structural and mechanical properties of food products] Izmerenie strukturno-mekhanicheskikh svoistv pishchevykh produktov. Moskva, Ekonomika, 19[illegible]. 222 p. (MIRA 18:3)

SHVETSOV, V. M.

AID P - 1666

Subject : USSR/Engineering

Card 1/2 Pub. 28 - 6/9

Author : Shvetsov, V. M.

Title : Permissible spans and deflection for pipe lines laid on props

Periodical : Energ. byul.,2,21-24, F 1955

Abstract : While a major part of the pipe system at the heat and electric power plants (TETs) and in the petroleum refineries is laid underground, there is a great deal of piping suspended or laid on props. The author discusses the inadequacy of information pertaining to allowable spans and sags and presents several cases of variations in existing practices. He analyses these data and suggests that generalization of existing experience in construction and long operating records of suspended pipe-systems

AID P - 1666

Energ. byul.,

Card 2/2 Pub. 28 - 6/9

will allow creation of norms for calculation of length of span.

Institutions: Glavenergo (Main Administration of the Power Industry); Giprogrozneft' (State Institute for Planning of the Groznyy Petroleum and Gas Industry); Teploelektroproyekt (Trust for Planning and Investigation of Heat and Electric Power Plants, Networks and Substations)

Submitted : No date

SHVETSOV, V. N.)

VYRSKIY, A.V.; SHVETSOV, V.N.; DEMINA, V.N., redaktor; CHUVANOV, M.I., tekhnicheskiy redaktor

[Wage tables for railroad freight loaders] Tablitsy dlia opredeleniia zarabotnoi platy gruzchikov na pogruzochno-razgruzochnykh rabotakh. Moskva, Gos. statisticheskoe izd-vo, 1953. 158 p. (MLRA 7:10)
[Microfilm]

(Railroads--Freight--Tables, etc.)
(Loading and unloading)
(Wages--Tables and ready-reckoners)

SHVETSOV, Vasiliy Nikolayevich

N/5
762.206
.S5

SHVETSOV, Vasiliy Nikolayevich

Statistika truda na zheleznodorozhnom transporte (Labor statistics in railroad transportation) Moskva, Transzheldorizdat, 1956.
173 p. diagrs., tables.

SHVETSOV, Vasiliy Nikolayevich; YURCHENKO, I.F., retsenzent; KOLTUNOVA, M.P., red.; USENKO, L.A., tekhn. red.

[Labor productivity in railroad transportation and ways of improving it] Proizvoditel'nost' truda na zheleznodorozhnom transporte i puti ee povysheniia. Moskva, Vses. izdatel'sko-poligraf. ob"edinenie M-va putei soobshcheniia, 1961. 45 p. (MIRA 14:10)
(Railroads—Labor productivity)

SHVETSOV, V.S.

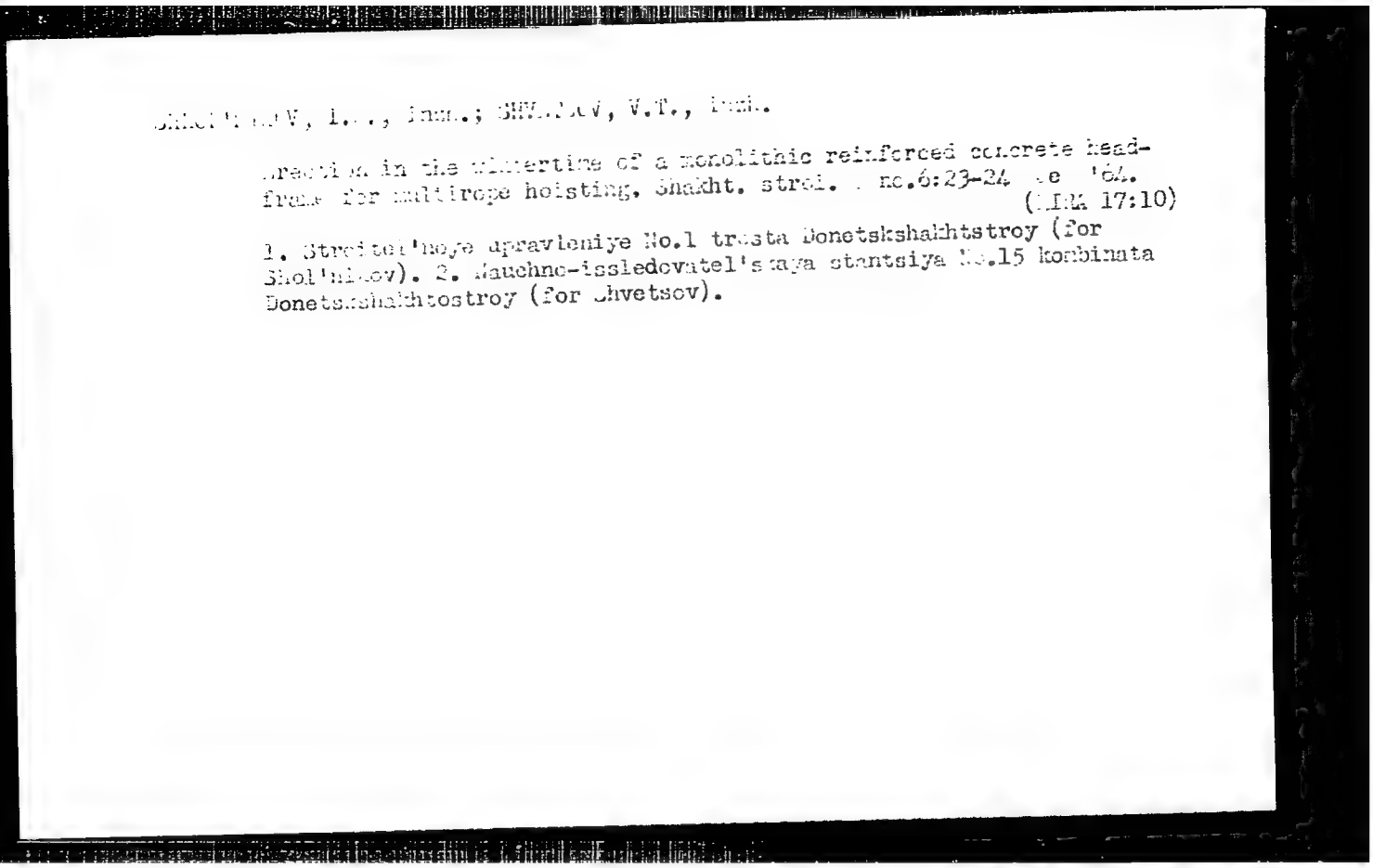
Effect of rectal instillations of water on the activity of some organs and on the system of horses. Veterinariia 36 no.10:39-41 O '59. (MIRA 13:1)

1. Ordinator Khar'kovskogo veterinarnogo instituta.
(Enema) (Horses)

YEMEL'YANOVA, O.I.; SIVERTSOV, V.S.

Kittens as a model for the study of colienteritis. Zhur. mikrobiol., epid. i immun. 40 no.4:93-96 Ap '63. (MIRA 17:5)

1. Iz Khar'kovskogo instituta vaktsin i syvorotok imeni Mechnikova i Khar'kovskogo veterinarnogo instituta.



Shol'nikov, I.., Inzh.; Shvetsov, V.T., Inzh.

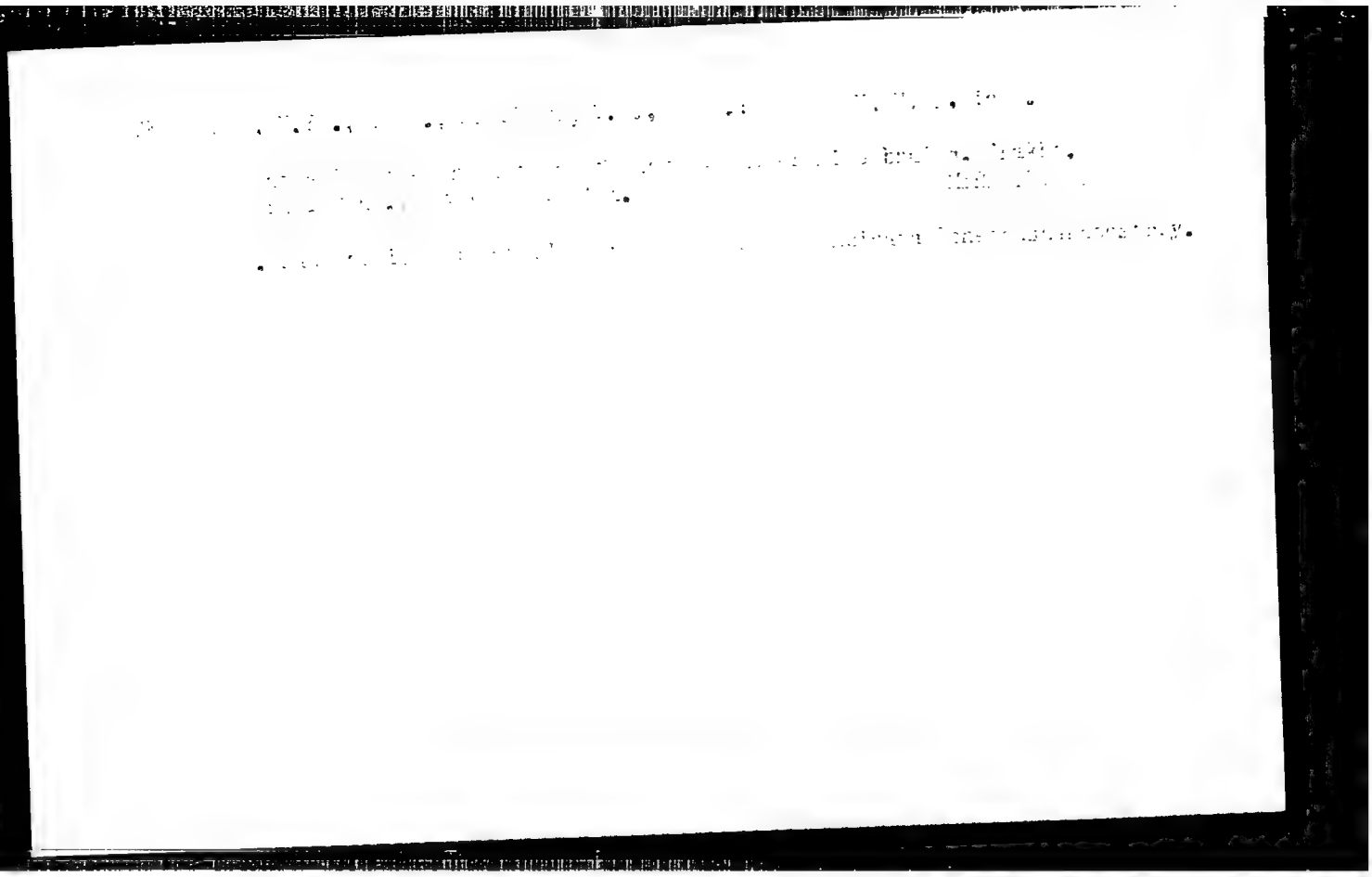
Practice in the wintertime of a monolithic reinforced concrete headframe for multirope hoisting. Shakht. stroi. no.6:23-24 Je '64. (MIRA 17:10)

1. Stroitel'noye upravleniye No.1 tresta Donetskshakhtstroy (for Shol'nikov). 2. Nauchno-issledovatel'skaya stantsiya No.15 kombinata Donetskshakhtostroy (for Shvetsov).

..., I.Ya., inzh.; SHVETSOV, V.T., inzh.; KALITS, V.I., inzh.

...ility of multirope hoisting machinery in the Donets Basin. Shakht. stroi. no.6:27-29 Je '64. (MIRA 17:10)

1. Khrebtovskaya stantsiya No. 15 kombinata Donetskshakhtostroy.



SHVETSOV, Ya. I.

Large-block construction of drilling stations in the Tatar A.S.S.R.
Neftianik 2 no.9:4-6 S '57. (MLRA 10:9)

1. Upravlyayushchiy trestom Tamburneft'.
(Tatar A.S.S.R.--Oil well drilling--Equipment and supplies)

SHVETSOV, Ye.M.; SHERMEYSTER, M.S.

Redesign of triple-fired holding furnaces. Metallurg 6 no.10:26-28 O '61. (MIRA 14:9)

1. Sortoprokatnyy tsekh Nizhne-Tagil'skogo metallurgicheskogo kombinata.
(Furances, Heating)

SOV/126-7-4-1/26

AUTHOR: Shvetsov, Ye.N.

TITLE: On the Theory of Phase Transitions in a Bose Gas

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 4, pp 481-490 (USSR)

ABSTRACT: General formulae are derived using the results obtained by Rumer (Ref 1 and 2) for the change in thermodynamic quantities of an ideal Bose gas near the λ-point. Two cases are considered, namely a free boson gas and a charged boson gas in a magnetic field. The latter case is of particular interest since, as was shown in Ref 3 and 4, a charged Bose gas in a magnetic field has the properties of a superconductor. Formulae are derived for the change in the specific heat at the λ-point and also the change in the derivative of the specific heat with respect to temperature at that point. This is done using the known dependence of the number of particles on the chemical potential and temperature (Ref 1). This dependence is given by Eq (1). In the second of the above two cases, it is shown that the change in the specific heat at the λ-point is proportional to the square root of the magnetic field and inversely

Card 1/2

On the Theory of Phase Transitions in a Bose Gas

proportional to the square root of the condensation temperature in the absence of the field. This applies to weak fields. In the case of strong fields, the change in the specific heat has a logarithmic dependence on the field. There are 7 references, 6 of which are Soviet and 1 German.

ASSOCIATION: Novosibirskiy gosudarstvennyy pedagogicheskiy institut (Novosibirsk State Institute of Education)

SUBMITTED: March 7, 1957

SHVETSOV, Ye.S.; MEKHANOSHIN, S.P.

Distribution of phlogopite deposits in the Aldan mica-bearing province. Zakonom. razm. polezn. iskop. 6:373-384 '62.
(MIRA 16:6)

1. Yakutskoye geologicheskoye upravleniye.
(Yakutia—Phlogopite)

L 57079-65 EWT(m)/EPF(c)/EWP(j)/T/EWP(t)/EWP(b) Pc-4/Pr-4 LJP(c) JD/RM
ACCESSION NR: AP5010791 UR/0079/65/035/004/0689/0693
547.258.2

29
8

AUTHORS: Andrianov, K. A.; Lavygin, I. A.; Shvetsov, Yu. A.

TITLE: Synthesis and properties of branching 8-hydroxyquinoline titanium dimethylsiloxanes of oligomers

SOURCE: Zhurnal obshchey khimii, v. 35, no. 4, 1965, 689-693

TOPIC TAGS: polymer, organic synthesis, titanium, organo metallic compound, glass transition temperature, IR spectroscopy, viscosity

ABSTRACT: The synthesis and some properties of the liquid tert(polydimethylsiloxane trimethylsiloxy)-8-hydroxyquinoline titanium oligomers (I) with trimethylsiloxane groups at the branching ends are described. The synthesis of (I) was effected by condensation of 8-hydroxyquinoline tributoxy titanium with alpha-hydroxy-omega-trimethylsiloxydimethylsiloxane. This yielded oligomers in which the degree of polymerization (n) of the trimethylsiloxane branching is 10, 15, 30, 98, and 136. The glass point of these oligomers is in the interval -102 to -118C, and the refractive index declines systematically with increase in degree of polymerization. The oligomer structure was studied by IR spectroscopy. A

Card 1/2

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ACCESSION NR: AP5010791

consistent logarithmic decrease in viscosity with increase in temperature indicates that the oligomers are normal liquids within the investigated temperature range. The activation energy in the interval 20-130C ranges from 4.59 kcal/mole for n=15 to 3.62 for n=136. The value drops rapidly at first, then levels off at higher values of n, meaning that the 8-hydroquinoline titanium oxane group determines in great measure the intermolecular reaction. The relation of activation energy to degree of branching is normal for linear polydimethylsiloxanes containing polar groups at the ends of the chains. A tabulation is given for the compositions and properties of the synthesized polymers. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 05Feb64 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 009 OTHER: 006

Card 2/2

VOL'PIN, M.Ye.; ILATOVSKAYA, M.A.; LARIKOV, Ye.I.; KHIDFKEL', M.L.; SHVETSOV, Yu.A.; SHUR, V.B.

Nitrogen fixation on hydrogen-activating transition metal complexes. Dokl. AN SSSR 164 no.2:331-333 S '65.
(MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Institut khimicheskoy fiziki AN SSSR. Submitted February 15, 1965.

SHVETZOV, YU. B.

"Investigation in the group of Vitamin K. II. Tautomeric and Oxydation-Reduction Transformation of 2-Methyl-1, 4-Naphtoquinone and of its Derivatives". Schukina, L. A. Shvetzov, Yu. B. and Shemiakin, M. M. (p. 330)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 4-5.

SHVETZOV, YU. B.

"Investigation in the Group of Vitamin "K". III. On the Mechanism of the Biologic action of Vitamin "K" and of its Synthetic analogues." Shemiakin, M. M. Shchukina, L. A., and Shvetzov, Yu. B. (p. 402)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 6.

SHVEMLOV, Yu. S. Cand. Chem. Sci.

Dissertation: "Hydrolytic Decomposition of Substituted Triketones of the Naphthalene Series." Inst of Biological and Medical Chemistry, Acad Med Sci USSR, 4 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

USSR/Chemistry - 1,4-Naphthoquinone
Chemistry - Hydrazine

Jan 1948

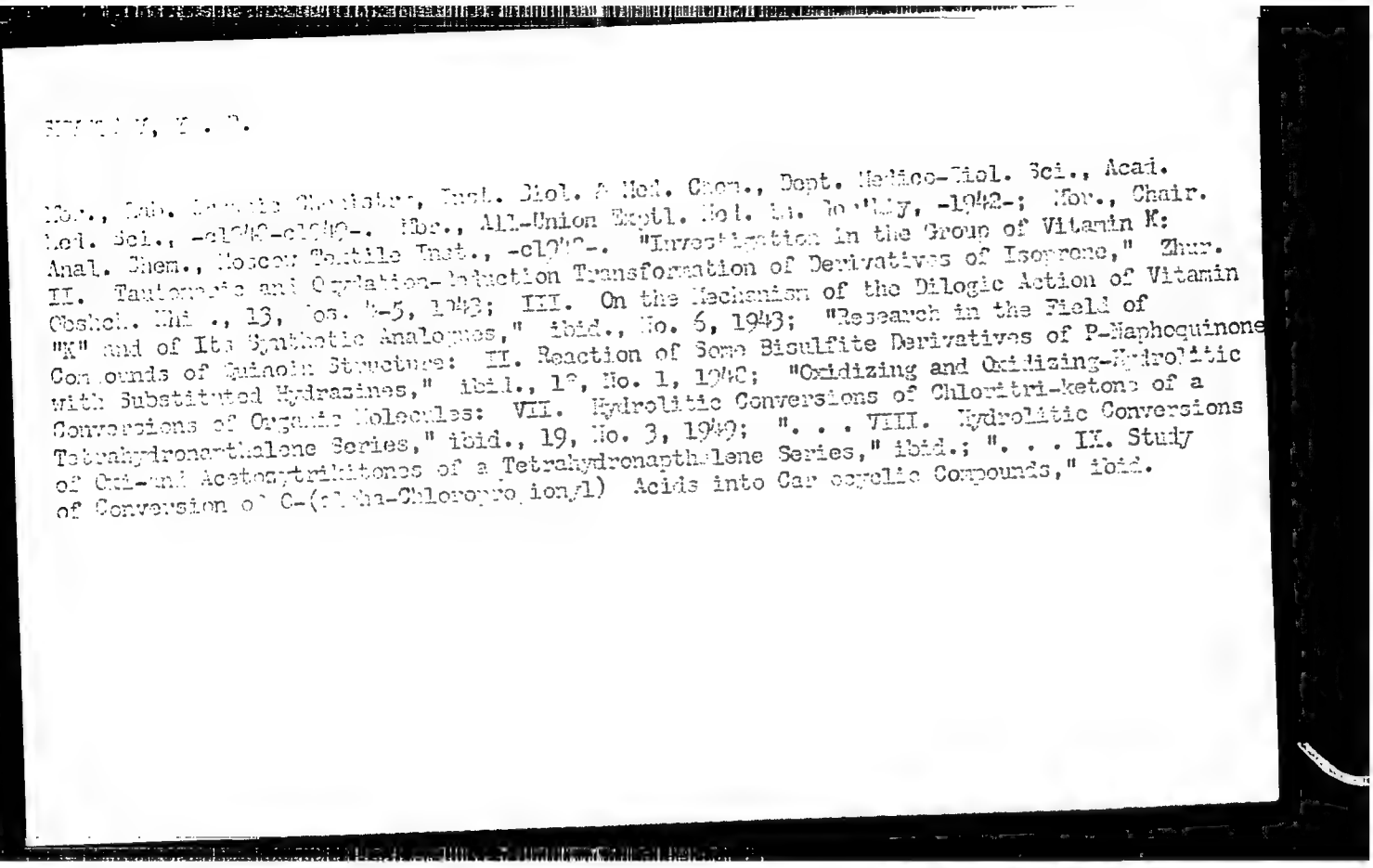
"Research in the Field of Compounds of Quinoid Structure: II, Reaction of Some Sisulfite Derivatives of P-Naphthoquinone With Substituted Hydrazines," D. A. Bochvar, Ye. I. Vinogradova, Yu. B. Shvetsov, M. M. Shemyakin, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR, and Chair of Anal Chem, Moscow Textile Inst, 11 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 1

Study the interrelationship of vaious types of pnaphthoquinone derivative bisulfites containing replaceable hydrazines, and observe the properties of the hydrazines formed. Show fallacies contained in formulas suggested by Palladin for bisulfite produced 2-methyl-1,4-naphthoquinone and by Ufimtsev for bisulfite produced 2-methyl-1,4-naphthoquinone-3-sulfonate

Submitted 14 Jan 1947

PA 64T39



[illegible], Y. P.

Mbr., Lab. [illegible] Chemistry, Inst. Biol. & Med. Chem., Dept. Medico-Biol. Sci., Acad. Med. Sci., -c1940-c1949-. Mbr., All-Union Exptl. Sci. Inst. [illegible], -1942-; Mbr., Chair. Anal. Chem., Moscow Textile Inst., -c1948-. "Investigation in the Group of Vitamin K: II. Tautomeric and Oxydation-Induction Transformation of Derivatives of Isoprene," Zhur. Obshch. Khi., 13, Nos. 4-5, 1943; III. On the Mechanism of the Dilogic Action of Vitamin "K" and of Its Synthetic Analogues," ibid., No. 6, 1943; "Research in the Field of Compounds of Quinoin Structure: II. Reaction of Some Bisulfite Derivatives of P-Naphoquinone with Substituted Hydrazines," ibid., 18, No. 1, 1948; "Oxidizing and Oxidizing-Hydrolitic Conversions of Organic Molecules: VII. Hydrolitic Conversions of Chloritri-ketone of a Tetrahydronaphthalene Series," ibid., 19, No. 3, 1949; ". . . VIII. Hydrolitic Conversions of Chl-and Acetonytriketones of a Tetrahydronaphthalene Series," ibid.; ". . . IX. Study of Conversion of C-(alpha-Chloropropionyl) Acids into Carbocyclic Compounds," ibid.

62/49T8

SHVETSOV, YU. B.

USSR/Chemistry - Cyclic Compounds Mar 49

"Oxidation and Oxidation-Hydrolysis Conversions of Organic Molecules: IX, Study of Conversion of o-(Alpha-Chloropropionyl) Acids Into Carbocyclic Compounds," Ye. I. Vinogradova, Yu. B. Shvetsov, M. M. Shemyakin, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR, 10 pp

"Zhur Obshch Khim" Vol XIX, No 3

Made a study of conditions and mechanism of the preparation of 5-and 6-member carbocyclic compounds from o-(alpha-chloropropionyl)-phenylglyoxylic acid. Submitted 2 Nov 47.

62/49T8

FDD

Shvetsov, Yu. B.

"Oxidizing and oxidizing-hydrolitic conversions of organic molucules: IX: Study of ways of conversion of o-(-a-chlorpropionyl) acids into carbocyoic compounds". Vinogradova, E.I. Shvetsov, Iu. B. and Shemiakin, M. M. (p. 507)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1949, Vol. 19, No. 3

/0

Oxidative and oxidative-hydrolytic transformations of organic molecules. X. Ammonolysis of 3-chloro-3-methyl-1,2,4-3H-naphthalenetrione. Yu. B. Shvetsov, I. A. Red'kin, and M. M. Shemyakin. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 340-8(1951); cf. C. A. 44, 3857h.—3-Chloro-3-methyl-1,2,4(3H)-naphthalenetrione (2.8 g.) triturated with cooling with 30% NH_4OH gave upon acidification 63% *o-(α-aminophenyl)glyoxylic acid lactam* (I), m. 180-90° (from EtOAc), and 5% [o-(α-chloropropionyl)phenyl]glyoxylamide (II), decomp. 234° (from H_2O), as well as 10% free acid, m. 90°. Similarly 2-chloro-2,3-dihydro-1,4-dihydroxy-2-methyl-1,4-naphthoquinone gave a mixt. of I and II separable by EtOAc. II is sol. in hot H_2O and EtOH, and on heating with 30% H_2SO_4 and $NaNO_2$ yields *o-(α-chloropropionyl)benzoic acid lactone*, m. 80-1° (from 50% EtOH) and 10% *o-(α-chloropropionyl)phenyl]glyoxylic acid*, m. 90°. II in the cold with 10% NaOH yields *(o-lactylphenyl)glyoxylamide* (III), m. 190° (from H_2O). II with 30% NH_4OH at 40° gave 94% I. III boiled 4 hrs. with 5% H_2SO_4 yields *(o-lactylphenyl)glyoxylic acid*, decomp. 231°. I is sol. in the usual org. solvents, colors on exposure to light, and on trituration with 10% NaOH readily yields 81% (o-lactylphenyl)glyoxylamide. **XI. Mechanism of the Hooker reaction.** I. A. Shchukina, Yu. B. Shvetsov, and M. M. Shemyakin. *Ibid.* 348-56.—The proposed mechanism of the Hooker reaction (Fieser and Fieser, C. A. 43, 1383f) is incorrect in the formulation of the decarboxylation of bicyclic α-HO acids and their transformations into the final hydroxynaphthoquinones. The formation of the final hydroxynaphthoquinones. The formation of compds. of the types o-$HO_2CCOC_6H_4COCH(OH)R$ and $HO_2CCOC_6H_4COCHClR$ proceeds by paths along the synthetic lines indicated by the present writers in earlier publications. Behavior of the OH and the Cl derivs. is understandable only if their keto-enol tautomerism is taken into account; and the structures o-C_6H_4.CO.CRX.C(OH).COH, where X is OH or Cl, proposed by the Fiesers are not to be considered as having been established. Treatment of 2.4 g. o-$MeCHClCOC_6H_4COCHO$ in 100 ml. 10% H_2SO_4 at 2° with 1.8 g. CrO_3 in 10 ml. 10% H_2SO_4 and stirring 5 hrs. at gradually rising temp. (to 18-20°) gave on treatment with

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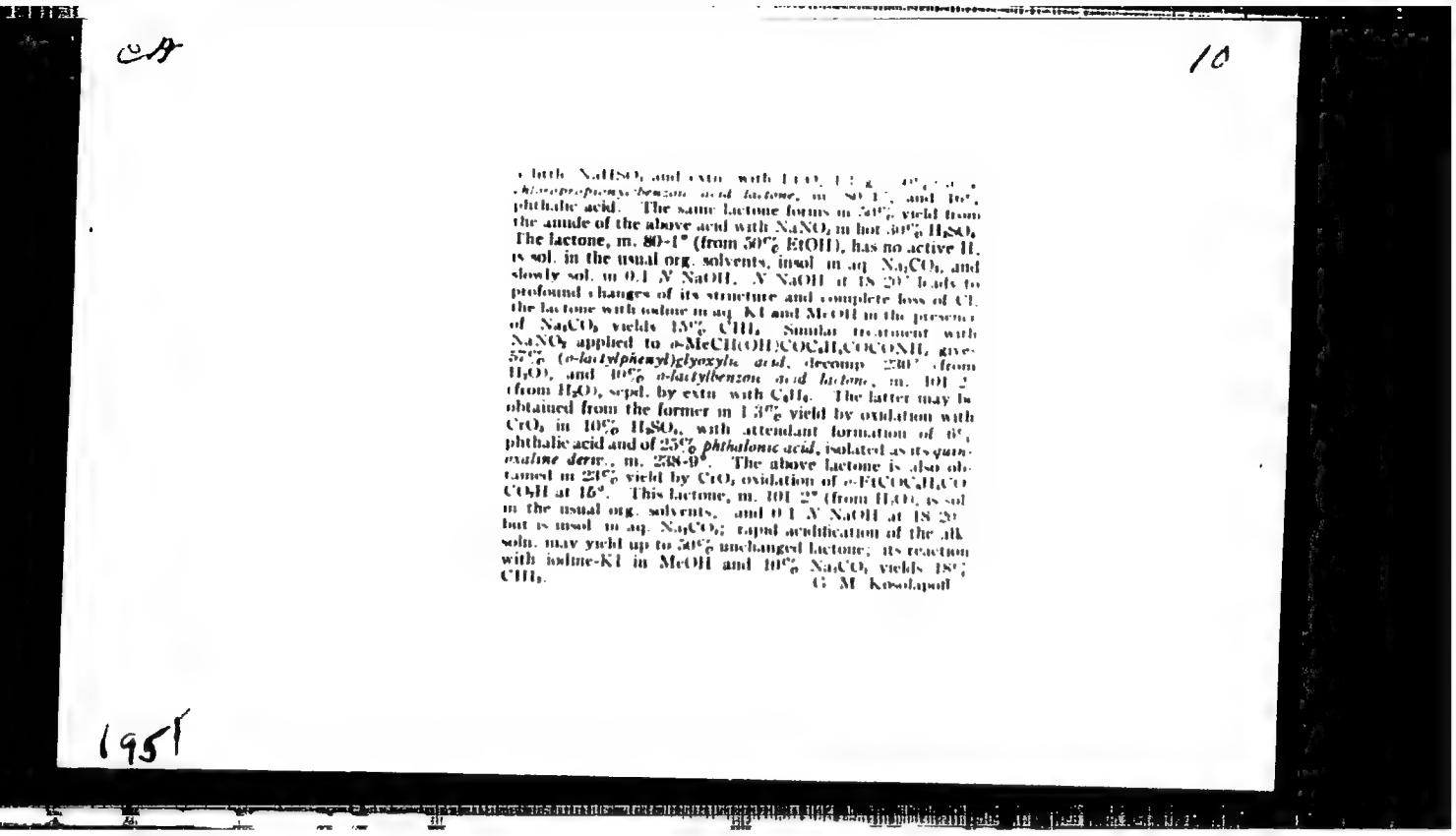


with NaHSO$_3$, and extd. with Et$_2$O, 1.3 g. 4'-[illegible]-*chloropropiophenone-2-carboxylic acid lactone*, m. 80-1°, and 10% phthalic acid. The same lactone forms in 34% yield from the amide of the above acid with NaNO$_2$ in hot 50% H$_2$SO$_4$. The lactone, m. 80-1° (from 50% EtOH), has no active H, is sol. in the usual org. solvents, insol. in aq. Na$_2$CO$_3$, and slowly sol. in 0.1 *N* NaOH. *N* NaOH at 18-20° leads to profound changes of its structure and complete loss of Cl. The lactone with iodine in aq. KI and MeOH in the presence of Na$_2$CO$_3$ yields 15% CHI$_3$. Similar treatment with NaNO$_2$ applied to *o*-MeCH(OH)COC$_6$H$_4$CO$_2$NH$_4$ gives 57% (*o-lactylphenyl*)*glyoxylic acid*, decomp. 230° (from H$_2$O), and 10% *o-lactylbenzoic acid lactone*, m. 101-2° (from H$_2$O), sepd. by extn. with C$_6$H$_6$. The latter may be obtained from the former in 13% yield by oxidation with CrO$_3$ in 10% H$_2$SO$_4$, with attendant formation of 6% phthalic acid and of 25% *phthalonic acid*, isolated as its *quinoxaline deriv.*, m. 238-9°. The above lactone is also obtained in 21% yield by CrO$_3$ oxidation of *o*-EtCOC$_6$H$_4$CO$_2$H at 18°. This lactone, m. 101-2° (from H$_2$O), is sol. in the usual org. solvents, and 0.1 *N* NaOH at 18-20° but is insol. in aq. Na$_2$CO$_3$; rapid acidification of the alk. soln. may yield up to 50% unchanged lactone; its reaction with iodine-KI in MeOH and 10% Na$_2$CO$_3$ yields 18% CHI$_3$.

G. M. Kosolapoff

SHVETSOV, Yu. B., SHEMYAKIN, M. M., SHCHUKINA, L. A., VITKOVSKIY, D. P. and KHOKLOV, A. S.

"Oxidation and Oxidative-Hydrolytic Conversions of Organic Molecules. XIX. Relation Between the Degree of Oxidation of Carbocyclic Compounds and the Capacity of Their Ring Groupings to Undergo Hydrolytic Splitting," Zhur. obshch. khim., 21, No.9, 1951

Lab. Org. Chem., Inst. Biol. & Med. Chem., AMS USSR

SHVETSOV, YU. B.

USSR/Chemistry - Antibiotics 1 Aug 51

"Synthesis and Properties of Alpha-Dichloroacetylamino-beta-Hydroxy-p-Nitropropiophenone (I)," E. M. Badmas, Ye. I. Vinogradova, D. N. Vitkovskiy, A. S. Khokhlov, Yu. B. Shvetsov, L. A. Shuchukina, Inst of Biol and Med Chem, acad Med Sci USSR

"Dok Ak Nauk SSSR" Vol LXXIX, No 4, pp 6 1-603

It was shown recently, that I is an intermediate product of the enzymatic splitting of chloromycetin by bacteria (G. S. Smith, C. S. Worrel, Arch Biochem, Vol XXVIII, 1, 232, 1950). In the present work, I was synthesized. Gives a description of the synthesis.

PA 211T27

21 Sep 52

USSR/Chemistry - Antibiotics

"Ways of Synthesizing Optically Active Analogs of D-threo-1-(p-nitrophenyl)-2-dichloroacetylamino-1,3-propanediol," M.A. Shchukina, Z.N. Zakhas, Ye. I. Vinogradova, M.S. Karapetyan, N.N.Kolosov, A.S.Kokhlov, Yu. B. Shvetsov and L.A. Shchukina, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR

Zhur Obshch, Vol 22, No 9, pp 1625-1626

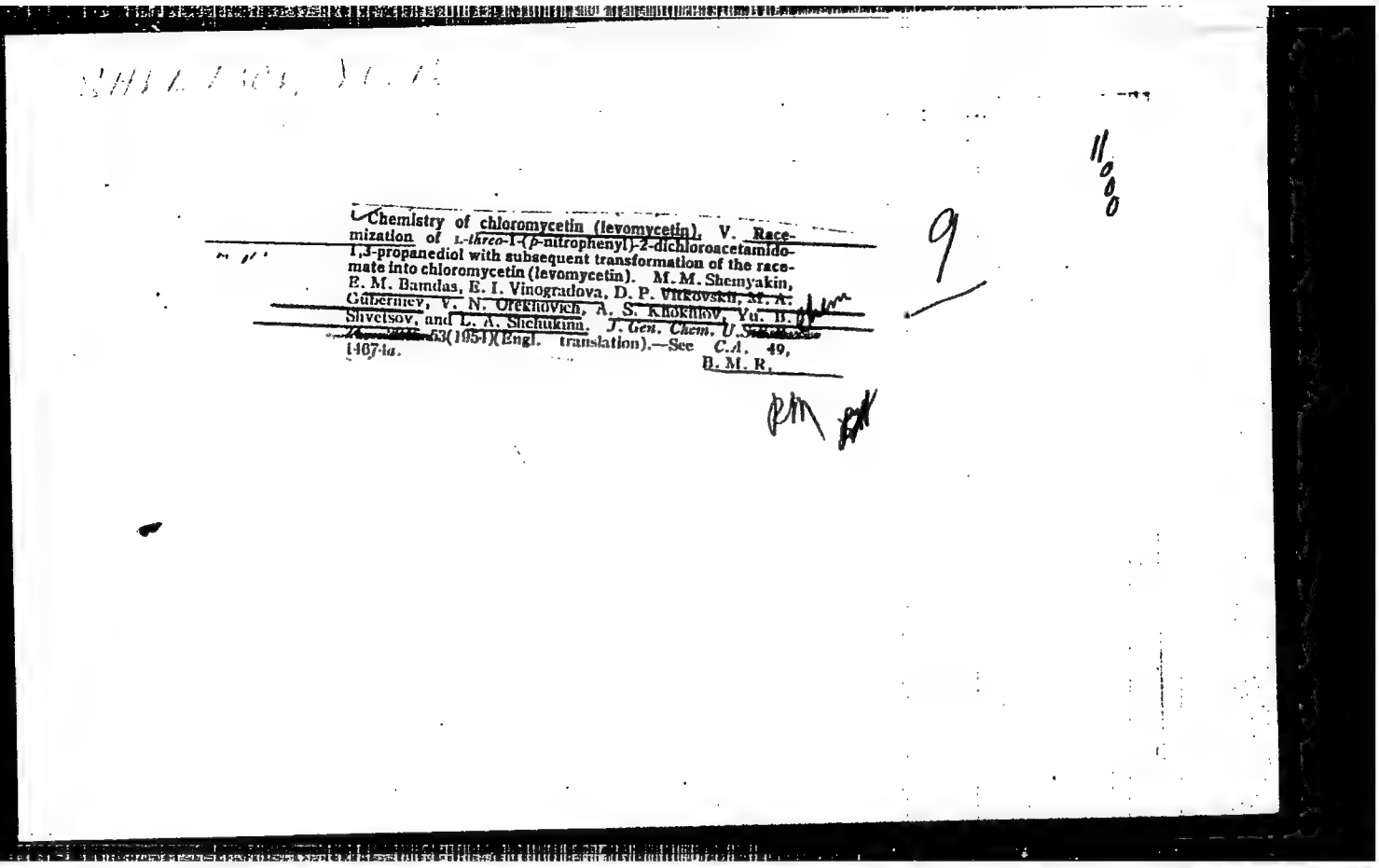
Of the four stereoisomers of 1-(p-nitrophenyl)-2-dichloracetylamino-1,3-propanediol, only one (the d-threo-isomer) is antibacterially active (chloromycetin, chloramphenicol, levomycetin). To learn the relationship between the structure of these compds and antibacterial activity, more analogs of these compds must be synthesized. Two ways of synthesis have been worked out at present. D-or l-threo-1-(p-nitrophenyl)-2-amino-1, 3-propanediol (I) is converted into the N-benzoyl derivative (II)which is reduced to the corresponding amino compd (III). This is diazotized into (IV). The diazo group is then substituted in several different ways to form an optically active compd (V). The benzoyl group is then removed from (V) to form the aminodiol (VI) which is dichloracetylated into (VII). The other synthesis also starts with (I) which is reduced to the diamino compound (VIII). This is N-dichloracetylated into the hydrochloride (IX) which is diazotized into (X). (X) is converted into (VII) in the same way as (IV) was into (V). [Reaction schemes are shown in the original paper.] Presented by Acad V.M. Rodionov 14 Jul 52

PA 247T11

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; KARAPETYAN, M.G.; KOLOSOV, M.N.; KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research on the chemistry of chloromycetin (levomycetin). Part 2. Study of the course of synthesis and the synthesis of optically-active analogs of chloromycetin (levomycetin). Zhur.ob.khim. 23 no.11:1854-1867 N '53. (MLRA 6:11)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR. (Chloromycetin)



Chemistry of chloromycetin (levomycetin). V. Racemization of *L-threo*-1-(*p*-nitrophenyl)-2-dichloroacetamido-1,3-propanediol with subsequent transformation of the racemate into chloromycetin (levomycetin). M. M. Shemyakin, E. M. Bamdas, E. I. Vinogradova, D. P. Vitkovskii, M. A. Gubernov, V. N. Orekhovich, A. S. Khokhlov, Yu. B. Shvetsov, and L. A. Shchukina. *J. Gen. Chem. U.S.S.R.* 21, 1463(1951)(Engl. translation).—See *C.A.* 49, 1467*a*.

B. M. R.

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; GUBERNIYEV, M.A.; OREKHOVICH, V.N.; KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research in the chemistry of chloromycetin (levomycetin). Racemization of *l*-threo-1-(*p*-nitrophenyl)-2-dichloroacetylamino-1,3-propanediol. Dokl.AN SSSR 94 no.2:257-259 Ja '54. (MLRA 7:1)

1. Chlen korrespondent Akademii nauk SSSR (for Shemyakin). 2. Deystvitel'nyy chlen AMN SSSR (for Orekhovich). 3. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR. (Racemization) (Propanediol)

VOROZHTSOV, Nikolay Nikolayevich, 1881-1941; VOROZHTSOV,N.N.(Jr.), redaktor; SHVETSOV,Yu.B., redaktor; LUR'YE,M.S., tekhnicheskiy redaktor; POGUDKIN,P.V., tekhnicheskiy redaktor

[Fundamentals of the synthesis of intermediate products and dyes] Osnovy sinteza promezhutochnykh produktov i krasitelei. 4-e izd. Moskva, Gos.nauchno-tekhn. izd-vo khimicheskoi lit-ry, 1955. 839 p. (MIRA 9:3)

(Chemistry, Organic--Synthesis) (Synthetic products) (Dyes and dyeing--Chemistry)

SHVETSOV, Yu. B.

Chemistry of chloromycetin (levomycetin). VI. Synthesis of new optically active analogs of chloromycetin (levomycetin). M. M. Shemyakin, M. N. Kolosov, M. G. Karapetyan, E. M. Bamdas, Yu. B. Shvetsov, E. I. Vinogradova, and L. A. Shchukina. *Zhur. Obshchei Khim.* 25, 1199–1206(1955); cf. *C.A.* 49, 9468, 14674c.—Diazotization of 10 g. D- or L-*threo*-*p*-$H_2NC_6H_4CH(OH)CH(CH_2OH)$-$NHCOCHCl_2$ (I) in 10% H_2SO_4 at 0–3° with $NaNO_2$, treatment with 40–50 g. SO_2 in 200 g. 25% H_2SO_4, satn. at −5 to −10° with SO_2 with slow addn. of 10 g. powd. Cu at −5 to −10° followed by filtration, extn. of the filtrate with EtOAc, and evapn. of the dried ext. gave 53–8% *p*-$HO_2SC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ (further purification by treatment with AcOH); D-*threo isomer*, softens at 125–7°, $[\alpha]_D^{25}$ −40.8° (Me_2CO); L-*threo isomer*, softens at 125–6°, $[\alpha]_D^{25}$ 45.2° (Me_2CO). The sulfinic acid (1 g.) in 2 ml. H_2O treated with 0.25 g. $NaHCO_3$ in 0.5 ml. H_2O and 0.5 g. $AgNO_3$ gave the ppt. of Ag sulfinate, which dried rapidly *in vacuo* and darkness at 30°, then shaken in the dark with MeI gave 65% *p*-$MeO_2SC_6H_4CH(OH)CH(CH_2OH)NH$-$COCHCl_2$: D-*threo isomer*, m. 165–6°, $[\alpha]_D^{25}$ 13.2° (EtOH); L-*threo isomer*, m. 165–6°, $[\alpha]_D^{25}$ −13.2° (EtOH). Treatment of the sulfinic acid with aq. $NaHCO_3$, filtration, and filtered and recrystd. from C_6H_6 gives 1.4 g. $BzC(:NOH)$-CH_2OH (I), leaves, m. 100.5–8.0°. I (500 mg.) in 10 ml. MeOH reduced with Pd-C and H 30 min. at 25°, and the product concd. and recrystd. from MeOH-AcOEt gives 250 mg. *dl*-$PhCH(OH)CH(NH_2)Me.HCl$ (II), leaves, m. 190–2°. II (40 mg.) in 0.4 ml. water and 0.4 ml. C_6H_6 benzoylated with 30 mg. BzCl and 10% NaOH and the product recrystd. from water give *dl*-$PhCH(OH)CH(NH$-$Bz)Me$ (III), needles, m. 142–4°. Catalytic reduction of 300 mg. I in 18 ml. *N* HCl with 150 mg. 10% Pd-C at 10° (117.6 ml. H absorbed in 1 hr.), the product concd. *in vacuo*, washed with AcOEt, the aq. layer concd., the residue in MeOH treated with Et_2O, the NH_4Cl filtered off, the filtrate concd., the residue in 0.5 ml. C_6H_6 benzoylated with 0.25 g. BzCl and 10% NaOH yields 110 mg. of a mixt. (IV) of *dl*-*N*-benzoylnorephedrine and its *ψ*-isomer, leaves, m. 130–3°; IV heated 5 min. with 1 ml. 10% HCl and the product recrystd. from MeOH-Me_2CO give 80 mg. *dl*-1-

M.M. SHEMYAKIN

and p-$O_2NC_6H_4COCl$ gave 98% p-$O_2NC_6H_4CONHC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 203–4° (decompn.), $[\alpha]_D^{25}$ −29.3°. Treatment of p-$HOC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ with Me_2SO_4 in the presence of aq. NaOH at 25–30° gave 23% p-$MeOC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 101–2°, $[\alpha]_D^{25}$ −34.2° (Me_2CO); L-*threo isomer*, m. 101–2°, $[\alpha]_D^{25}$ 33.2° (Me_2CO); DL-*threo form*, m. 107–7.5°. p-$HO_2CC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$ treated with aq. $NaHCO_3$, followed by $AgNO_3$, and the dried Ag salt treated with MeI 8 hrs. gave 80% p-$MeO_2CC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 128–9°, $[\alpha]_D^{25}$ −29.0° (Me_2CO). I.HCl treated with KOAc in MeOH, followed by BzH, kept 1 hr. at 20° and heated to reflux, gave after diln. with H_2O 71% p-$PhCH:NC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 153–4°, $[\alpha]_D^{25}$ −47.5° (Me_2CO); L-*threo isomer*, m. 153–4°, $[\alpha]_D^{25}$ 45.6° (Me_2CO); DL-*threo form*, m. 146–7°. I.HCl in MeOH with KOAc, followed by PhNO in AcOH gave after 12 hrs. at 15–20° and diln. with H_2O 40% p-$PhN:NC_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 144–5°, $[\alpha]_D^{25}$ −50.1° (Me_2CO); L-*threo isomer*, m. 144–5°, $[\alpha]_D^{25}$ 57.1° (Me_2CO); DL-*threo form*, m. 150–1°. I.HCl with NaOAc in MeOH, followed by m-$ONC_6H_4NO_2$ in AcOH 20 hrs. at 4–5° gave 76% p-$(m$-$O_2NC_6H_4N:N)C_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. about 100°, $[\alpha]_D^{25}$ −41.2° (Me_2CO); the product crystallizes with 1.5 moles solvent (CCl_4 or C_6H_6). I.HCl diazotized in aq. HCl and treated with PhOH in aq. NaOH-Na_2CO_3 gave 52% p-$(p$-$HOC_6H_4N:N)C_6H_4CH(OH)CH(CH_2OH)NHCOCHCl_2$: D-*threo isomer*, m. 179–81°. $[\alpha]_D^{25}$ −59° (Me_2CO); L-*threo isomer*, m. 179–81°, $[\alpha]_D^{25}$ 57.4° (Me_2CO); DL-*threo form*, m. 171–2°. Also in *J. Gen. Chem. U.S.S.R.* 25, 1147-51(1955)(Engl. translation). G. M. Kosolapoff

2/2

SHVETSOV, Yu. B.

USSR/Chemistry - Antibiotics

Card 1/2 Pub. 22 - 27/54

Authors : Shemyakin, M. M., Memb.Cor.Acad. of Sc., USSR; Koloscv, M. N.; Levitov, M. M.; Germanova, K. I.; Karapetyan, M. G.; Shvetsov, Yu. B.; and Bamdas, E.M.

Title : Relation between structure and antimicrobic activity of chloromycetin (levomycetin) and the mechanism of its reaction

Periodical : Dok. AN SSSR 102/5, 953-956, Jun 11, 1955

Abstract : It is shown that the high selectivity of the biological effect of chloromycetin on microbes is determined simultaneously by the following factors: 1) strong polarizing effect of the p-nitrophenyl radical, the geometrical dimensions of which are of no importance; 2) strong polarizing effect of the dichloroacetyl radical, which should satisfy even the most specific geometrical requirements; and 3) defined geometrical dimensions and corresponding conformation of the aminopropanediol group. The relation between the structure and biological activity of chloromycetin is explained.

Institution : Acad. of Med. Sc., USSR, Inst. of Biol. and Med. Chem.

Submitted : January 27, 1955

Translation in M

Card 2/2 Pub. 22 - 27/54

Periodical : Dok. AN SSSR 102/5, 953-956, Jun 11, 1955

Abstract : Five references: 2 USSR and 3 USA (1858-1955). Diagrams.

SHEMYAKIN, M.M.; KOLOSOV, M.N.; LEVITOV, M.M.; GERMANOVA, K.I.; KARAPETYAN, M.G.; SHVETSOV, Yu.B.; RAMDAS, E.M.

Chemistry of chloromycetin (levomycetin). Part 8. Relation of the antibacterial activity of chloromycetin to its structure and the mechanism of this activity. Zhur.ob.khim. 26 no.3:773-782 Mr '56. (MLRA 9:8)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Chloromycetin)

SHEMYAKIN, M.M.; SHCHUKINA, L.A.; VINOGRADOVA, Ye.I.; KOLOSOV, M.N.; VDOVINA, R.G.; KARAPETYAN, M.G.; RODIONOV, V.Ya.; RAVDEL', G.A.; SHVETSOV, Yu.B., BAMDAS, E.M.; CHAMAN, Ye.S.; YERMOLAYEV, K.M.; SEMKIN, Ye.P.

Research data on sarkomycin and its analogues. Part 1: Synthesis of dihydrosarkomycin and its antipode. Zhur. ob. khim. 27 no.3:742-748 Mr '57. (MLRA 10:6)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Sarkomycin)

SHEMYAKIN, M.M.; RAKHMANKUL', G.A.; CHAMAN, Ye.S.; SHVETSOV, Yu.B.; VINOGRADOVA, Ye.I.

Synthesis of racemic sarkomycin. Izv. AN SSSR. Otd. khim. nauk no.8:1007 Ag '57. (MIRA 11:2)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Sarkomycin)

SHVETSOV, Yu. B.

5.3600, 5.3700, 5.3610

77077
SOV/62-59-12-21/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A., Chaman, E. S., Shvetsov, Yu. B., Vinogradova, E. I., Vdovina, R. G., Yermolayev, K. M., Bamdas, E. M.

TITLE: Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2177-2187 (USSR)

ABSTRACT: 2-Methylcyclopentan-3-one-1,1-dicarboxylic acid (III) was used for the preparation of (Sarcomycine) 2-methyl-one-cyclopentanone-3-carboxylic acid (I). (III) was assumed to be converted into (V) by bromination. It seemed possible to synthesize (I) from (V) by removal of HBr and by decarboxylation. Diacid (V) could not be obtained because elimination of HBr from (IV) and simultaneous decarboxylation formed (VI) with an endocyclic double bond.

Card 1/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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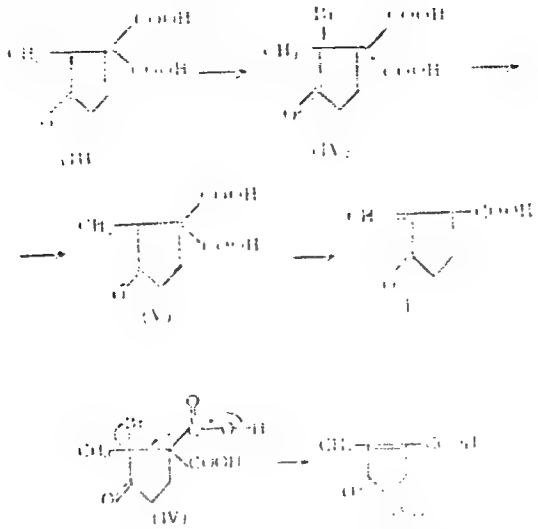

Card 2/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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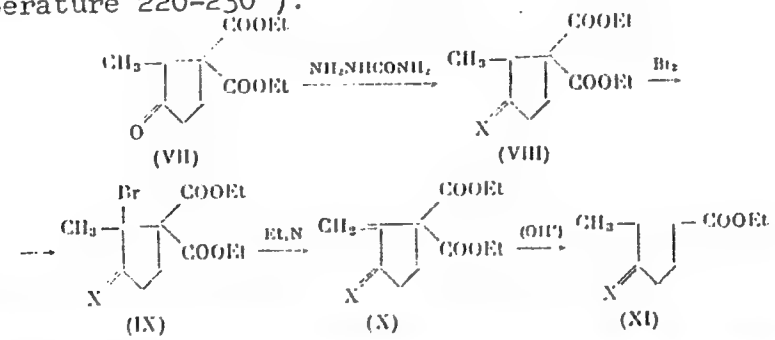
SOV/62-59-12-21/43

The semicarbazone of the diethyl ester of 2-methylcyclopentan-3-one-1,1-dicarboxylic acid (VIII) was brominated, and after eliminating HBr the semicarbazone of the diethyl ester of 2-methylenecyclopentan-3-one-1,1-dicarboxylic acid (X) was obtained in 56% yield (mp 207-209°). Diester (X) was saponified and the semicarbazone of the ethyl ester of 2-methylcyclopenten-1-one-3-carboxylic acid (XI) was obtained, in 74% yield (dec. temperature 220-230°).



(VII) (VIII) (IX) (X) (XI)

where X = $NNHCONH_2$.

Card 3/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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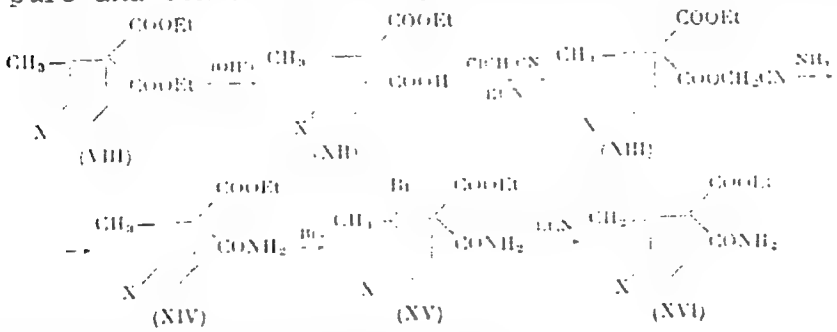
Attempts were made to convert the semicarbazone of the amide of 1-carbethoxy-2-methylcyclopentanene-3-carboxylic acid (XIV) into the semicarbazone of the amide of 1-carbethoxy-2-methylenecyclopentanone-3-carboxylic acid (XVI), but the isolated compound (XVI) was not pure and contained from 30 to 40% polymeric material.



Card 4/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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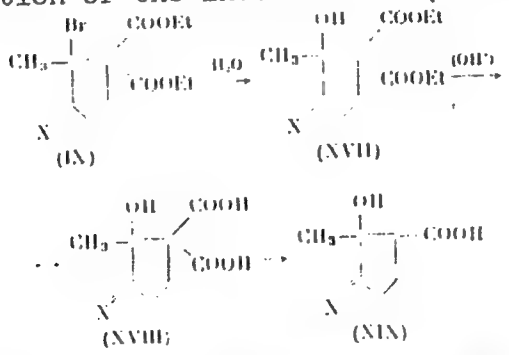
Semicarbazone of the diethyl ester of 2-methylcyclopentan-2-olone-3-carboxylic acid (XVII) was obtained, in 81% yield (mp 160-161°), from (IX) by reaction with water. Semicarbazone of 2-methylcyclopentan-2-olone-3-carboxylic acid (XIX) was prepared in 38% yield (mp 187-188°) by saponification of (XVII) and by subsequent decarboxylation of the intermediate (XVIII).



Card 5/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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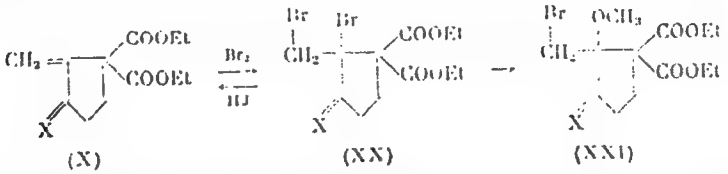
Dibromide (XX) was obtained quantitatively (mp 82-85° dec.) by addition of two bromine atoms to the diester (X). In the compound (XX) one bromine atom (position 2) is very labile. (XX) reacts with CH_3OH or H_2O forming corresponding compounds (XXI) in 65% yield (mp 138-139°) or (XXII) in 83% yield (mp 148-149°). The labile bromine atom in compound (XX) can quantitatively oxidize KI to free iodine, in the cold, but the obtained product can not be isolated, because the reaction is accompanied by elimination of HBr and formation of diester (X) in 71% yield (mp 207° dec.).



(X) (XX) (XXI)

Card 6/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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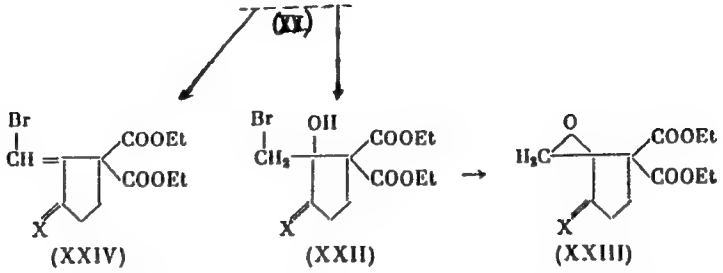
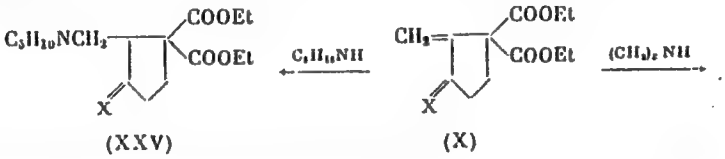


where $X = NNHCONH_2$.

Compound (X) was converted into corresponding amines (XXV), in 17% yield (mp 124-126°), and (XXVI), in 62% yield (m p 160-161°), according to the reaction:



Card 7/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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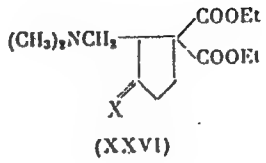
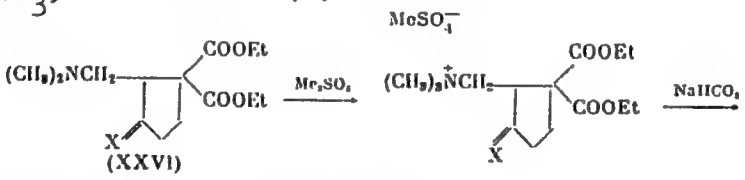


(XXVI)

where X = $NNHCONH_2$.

Amine (XXVI) reacted with $(CH_3)_2SO_4$, in the presence of $NaHCO_3$, and diester (X) was obtained in 75% yield.



(XXVI)

Card 8/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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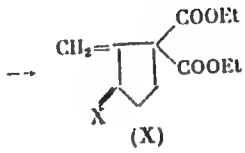


(X)

where $X = NNHCONH_2$.

The synthesis of (I) may take place as follows: amines of (XXV-XXVI)-type, after hydrolysis, decarboxylation, and formation of the methylene group, can be converted into (I). The results of investigation will be published in a forthcoming communication. There are 9 references, 3 Soviet, 1 German, 2 Japanese, 1 U.K., 2 U.S. The 3 U.S. and U.K. references are: Chem. and Industr. 1957, 1320; E. J. Corey, J. Amer. Chem. Soc. 75, 1163 (1953); J. R. Hooper, L. C. Cheney et al., Antibiot. and Chemother. 5, 585 (1955).

Card 9/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077
SOV/62-59-12-21/43

ASSOCIATION: Institute of Biological and Medical Chemistry, Academy of Medical Sciences (Institut biologicheskiy i meditsinskoy khimii Akademii medicinskhikh nauk)

SUBMITTED: April 12, 1958; Additions made, December 28, 1958

Card 10/10

SHVETSOV, Yu. B.

5.3400,5.3600,5.3610

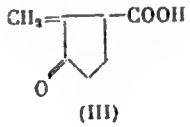
77078
SOV/62-59-12-22/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A. Chaman, E. S., Shvetsov, Yu. B., Vinogradova, E. I.

TITLE: Investigation in the Field of Sarcomycine and Its Analogs. Communication 5. Synthesis of Racemic Sarcomycine

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2187-2194 (USSR)

ABSTRACT: Racemic sarcomycine (III) was synthesized in the form of its semicarbazone (XVIII).



(III)

Card 1/4

Investigation in the Field of Sarcomycine and Its Analogs. Communication 5. Synthesis of Racemic Sarcomycine

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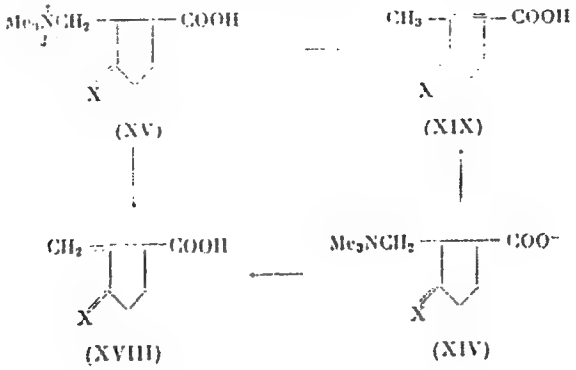

The ethyl ester of 2-dimethylaminomethylcyclopentanone-3-carboxylic acid (XI) was used as starting material for the preparation of (III). Racemic sarcomycine in the form of its semicarbazone (XVII) can be obtained, in 39% yield, from the methiodide of acid (XV) or from betaine (XIV) together with the semicarbazone of 2-methylcyclopenten-1-one-3-carboxylic acid (XIX). For

Card 2/4

this purpose (XV) or (XIV) is heated on a water bath for 4 minutes with 2 moles (for betaine 1 mole) of 1N NaOH. The solution was cooled to 0-2°, 10% HCl was added, and after 30 minutes the precipitate was removed by filtration and washed with cold water. The mixture of (XVIII) and (XIX) was obtained in 39% yield. The compound turns black on heating, but does not melt. Found: C 48.87%; H 6.02%. $C_8H_{11}O_3N_3$. Calculated: 48.75%; H 5.63%. From the above mixture, the semicarbazone of racemic sarcomycine (XVIII) was isolated by crystallization, in 50-55% yield. There are 8 references, 3 Soviet, 1 Japanese, 1 U.K., 3 U.S. The 4 U.S. and U.K. references are: Chem. and Industr. 1957, 1320. G. Buchi, N. G. Yang and Others, Chem. and Industr. 1953, 1063; J. Meinwald, S. L. Emerman and others., J. Amer. Chem. Soc. 77, 4401 (1955); E. E. Van Tamelen, S. R. Bach, J. Amer. Chem. Soc. 77, 4683 (1955).

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Card 4/4

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